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The Rise of Complementary Currencies and Corporafinance: E-commerce Driven Competition in the Financial Sector

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Abstract

This paper explores the potential of corporate monies (including electronic payment systems, non-banks and new forms of money), which we term corporafinance, supported by the capabilities of electronic commerce infrastructures that provides competition in the financial sector. The paper draws upon parallels from the industrial revolution, and the structures that emerged, as well as the evolution of money. The paper then explores complementary currencies and new structures that are emerging within the information revolution. In times of uncertainty within the financial markets complementary currencies and corporafinance may offer a stabilizing effect - even with

systemic collapse of the traditional banking sector, electronic monetary activity may still flourish.

Keywords: banking sector; information and communication technology (ICT); corporafinance, complementary currency, industrial capital

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INTRODUCTION

The current turbulence within the financial sector raises issues for long-term stability and the corresponding wider impact across the economy. This paper examines some of the systemic weaknesses in the financial sector that have been growing over the last few decades, and discusses one possible route that may provide long term stability. The evolution and adoption of e-commerce technologies have made it possible to seriously consider alternatives to the existing financial systems. This paper examines some of these alternatives and argues that, perhaps, everything is in place for the emergence of *corporafinance* or multiple currencies to emerge.

Systemic weakness in the financial sector recently arose in 2007, following default in the sub-prime US mortgage market, with knock-on effects around the globe due to general bank exposure (Jagger 2008). The issues of instability were raised in a speech at the Philadelphia Fed Policy forum, in November 2007, where Governor Randall Kroszner discussed some of the innovations and challenges facing financial markets, particularly relevant in the wake of the crisis. Kroszner argued that sufficient *information* about financial innovations is paramount for stakeholders to aid risk assessment and for market stability: "When market participants realize that they do not have the appropriate information necessary for proper valuation of risk, the price-discovery process can be disrupted, and market liquidity can become impaired" (Kroszner 2007, p4).¹ Sub-prime collateralized securities lacked information resulting in inappropriate AAA ratings given to a collection of investment products, heralding a major collapse and restructuring within the financial sectors. In the wake there have been bank-runs, failing hedge-funds, debt write-downs, bank job cuts and emergency measures from central banks (and governments) to stabilize the banking sector (Bawden 2008, Jagger 2008). In March 2008 the US Federal Reserve responded to the deteriorating credit crisis with a \$2000bn collateral facility; in April 2008 the Bank of England offered a similar £50bn facility to support banks and interbank lending. Around Europe governments took similar actions to support their financial sectors in an attempt to stave off or reduce recession.

There have been many contemporary signs of systemic weakness. Banks, for instance, are increasingly exposed to the vagaries of international financial markets (through their trading positions) since they now earn less than 20% of their income from interest. Lietaer (2001) has calculated and compared the volumes of currency trading over recent decades with daily transactions in 1975 in the order of \$15bn, compared to \$2000bn in

¹ The ideas of Kroszner are reminiscent of the *market efficiency hypothesis*, first espoused by Eugene Fama (in a seminal article) where he argued that different levels of information directly impacted the reliability (in terms of the real value) of market-price signals for financial securities. Fama, Eugene (1970) "Efficient Capital Markets – A Review of Theory and Empirical Work" *Journal of Finance*, 25, pp 383-417

2000: A 5% run on currency in the earlier years would have resulted in about \$3bn of pressure, which most central banks could withstand, whereas in 2000 a 5% run would result in \$100bn pressure which no central bank could withstand (Lietaer 2001; Boyle 2003, p39). The financial system is now driven on speculation and gambling on the markets, which provides a risky and volatile base (Soros 1995; Boyle 2003, p80).

Given the potential riskiness of financial institutions, and markets, it is perhaps time to look for other measures to achieve stability. This is important given the role and impact that financial institutions have had on the economy, government and societies. The measures taken by governments in response to the virtual collapse of the financial institutions, following the sub-prime mortgage market turbulence in 2007, is likely to put financial pressures on nations for a generation or even longer. Finding a route to a long term solution is likely to be an aim for most economies (Weiner 2008). This paper identifies one potential route towards economic stability, by utilizing e-commerce technologies and *corporafinance/duel currencies* that provide competition to existing financial sectors.

The rest of the paper is structured as follows: First, we explore the e-commerce/information revolution of previous decades. The paper then examines the rise of technology enabled non-banking entities, followed by a background to the evolution of money and examples of duel currencies. The paper then explores how technology-enabled complementary currencies can be more widely developed.

THE THIRD WAVE, E-COMMERCE AND THE INFORMATION REVOLUTION

Some argue that we are in the middle of a technological revolution of comparable scale to the Industrial Revolution. There is also debate whether the current burst of sustained economic activity is an e-commerce or Information revolution. One of the key writers arguing that we are going through a prolonged set of rapid revolutionary changes is Toffler (1984). Toffler describes the transformation of humanity into three phases of innovation-led changes (Toffler and Toffler 1980). The First Wave of change occurred when peasant-centred economies supplanted hunter-gather economies. The Second Wave of change was the Industrial Revolution that gave us factory-based mass production systems for wealth generation. The Third Wave of civilization change is the current set of revolutions, where wealth creation is marked by a move towards 'de-massification' (i.e. away from mass production), hyper-competition, successive technological revolutions and associated social dislocation. In the Third Wave information and knowledge become the primary factor of production for wealth creation (Toffler and Toffler 2003, x). The current Information revolution is resulting in business activity that is conducted in an interdependent and increasingly competitive (global) work environment, as corporations face new opportunities (and competitors) from the global market space: "We have been in a new economic era for a decade or two, in which the central driving force is the globalization of markets and competition, and there is no evidence that this era is going to end any time soon" (Kotter 2003, p165). In such a global, and competitive, market space creativity and innovation becomes more important for corporations and nations, as Porter identifies: "Today, the only way to have an advantage is through innovation and upgrading. But this innovation, this upgrading, has to involve a consistent strategic direction. ... if we apply this thinking to economies rather

than companies, governments have to understand first and foremost that there is a new paradigm of competitiveness. It's a paradigm based on innovation and upgrading" (Porter 2003, p54).

If much of current economic theory and activity is based on the principles that were developed through the first industrial revolution, then we are set to see structural changes as we move into the new era of the information revolution. Deane (1988) identifies and examines some of the structural change from the first industrial revolution including: demographic, agricultural, commercial, transport, industrial (cotton, iron), innovation sources, labour-roles, capital-function, banking, and trade. During this industrial revolution new business and social structures emerged. Commerce and production were focused around the commodities such as steel, coal, cotton. New production facilities (factories) emerged which enabled the mass production of goods. In addition, new types of town emerged to accommodate migrating farm workers as they moved towards employment offered by factory. New banking and capital structures also emerged to finance the development of factories and global commerce. Finally, new transportation structures emerged, such as canals, rails, better road networks and steam power.

In the current era, however, the focus is on electronic infrastructures and technologies which are dictating the rate and specifics of the transformation. Information in its wider sense, with information-based services, has become the main commodity. New production practices have also emerged based on virtual collaboration, supply chains, eco-nets and global outsourcing, all supported by electronic infrastructures and information. Production activity has moved towards mass-customization, supported by mobile, ad-hoc and virtual working teams. Companies can conduct business solely within the virtual operating environments. Indeed, some of the biggest and fastest growing companies are based on virtual operating activity and effectively just moving electronic data (e.g. e-bay and Google). The changes have affected the financial domains with new types of banks and financial instruments emerging, such as virtual banks, electronic markets and derivatives, and also with corporate and retail banking systems.

In recent years, the information revolution and corporate innovation has led to new channels of financial circulation and, since the early 1970's, financial liberalization has contributed towards a more global economy. Part of the structural change underway is the emergence of alternatives to the traditional banking and financial infrastructures. These will be covered in the next section.

The rise of Nonbanks

Nonbanks are playing an increasingly significant role in the financial world. Bradford et al (2002) examined the roles that nonbanks play in payment activity and identified that

- Nonbanks are involved in a myriad of activities and roles, both in traditional and emerging payments types;
- Nonbank business relationships with banks and other participants in the payments systems are often highly complex and interrelated;
- Nonbanks are rarely directly involved in settlement activities and, hence, appear to be associated with limited settlement and systemic risk;
- Both nonbanks and banks appear to be increasingly susceptible to operational

risk factors.

A follow-on study by the European Central Bank and Federal Reserve Bank of Kansas City (ECB & FRBK 2007) confirmed the growing importance and influence of nonbanks: "Retail payments systems throughout the world are undergoing fundamental change. Traditional paper-based forms of payment are giving way to electronic forms of payment. Technology advances are making possible new front-end payment instruments and new back-end processing methods. New products, business models, new markets, and new alliances are an everyday occurrence. ... One key element of this new environment is the increased importance of nonbanks in the payment system. Nonbanks are making their presence felt at all stages of the payments chain. At this time, nonbanks appear most prominent in the United States, but they are prominent in many European countries as well. And, most importantly, their presence appears to be increasing in virtually all countries" (ECB and FRBKC 2007, p45)

Welch and Worthington (2007), focusing on how retailers have diversified into financial services, identify that the multinational retailers are seen as a threat to retail banks and are challenging banks in their own core markets. Retailers have strong brands and are responsive to customer needs – including financial. However, Welch and Worthington identify that, so far, retailers has adopted a selective approach to the provision of financial services and do not cover the wider range of financial services offered by banks. However, retail banks can also offer financial services not well covered by the traditional banking players. In the United States, for instance, community banking - or accounts for people with very low income, is emerging as an extra support from retail corporations.

Given that we are dealing with new forms of money, Porter's 'five forces' model is a useful tool to examine developments in the electronic payments and services industries. It is worth noting that the e-payments 'industry' is not a single industry, but rather a set of evolving *industries* all converging around an association with e-payments. Porter's five competitive forces cover the; threats from potential new entrants, buyers' bargaining power, supplier bargaining power, substitute threats and inter-firm rivalries. Within the e-payments industries, the majority of the players are new entrants that have emerged over a relatively short period of time. Even comparatively long-standing players, such as credit card companies like Visa or MasterCard, have few years experience in dealing with online payments. On-line business and activity, with corresponding e-payments, are also continually changing and evolving, thus creating a completely new business arena. This means that the key corporate players in e-payments have evolved from different industrial sectors, including the payments service sector itself (e.g. credit cards companies and payment service providers), the banking sector (banks and building societies), the telecommunications sectors (especially the mobile and fixed telecommunication operators), technology sectors e.g. software and hardware companies. In addition there are the new entrants such as Paypal, Google and Payhound. Furthermore, the retail sector has also moved into the e-payment arena. So, the e-payments industries have become intense competitive places and the (traditional) financial institutions are facing competition from each of these evolving sectors mentioned. It is perhaps possible to describe the current e-payments industries as a *hyper competitive market place*, and it is not clear which sectors or companies within those sectors are likely to emerge successful. As a consequence, banks have been

creating alliances with other banks, technology companies and telecommunication companies. This development contributes to potential instability for the traditional financial sectors and sets the scene for systemic change.

The retailer threat to retail banking may be even more fundamental. Retailers have strong relationships with their customers, often providing ranges of services that tie in customers with reward schemes. In addition, a customer is more likely to meet a retail manager than a bank manager. The trend in banking has been towards ATM's, and 'distance-banking', where customers rarely get to see banking personnel. In contrast, customers regularly visit their preferred retailer for weekly shop or for a variety of other goods such as medicines, mobile phones, kitchen items, white goods, electronics goods, books, CDs, DVDs, stationary and a variety of services such as credit cards, or pet and car insurance.

Many of the innovations in the banking and financial sector (such as ATMs, online banking, call-centers and 'distancing of the customer') have been driven mostly by cost saving, whereas innovations from the retail sector have been mostly driven by developing new services. Banks' business activity revolves almost exclusively around financial services yet, conversely, retailers' business models are more diverse and supported by the selling of physical commodities which are in daily need. If there are problems in the financial services markets, then banks are more heavily affected than retailers who can rely on their sustainable retailing activity to offset any financial instability. In addition, large retailers receive payment from customers (for their weekly shopping) often before the suppliers have been paid for the very same goods. This low-risk approach of retailers extends to other aspects of the supply chain relationship. Subramani M. (2004) has identified, for instance, that the supplier-retailer relationships is complex and uneven, especially where there are technology-dominated supply chains, since a small supplier will need relationship-specific investments and are effectively locked-in to a retailer. The larger retailers, therefore, transfer much of the risk to their wider supplier network.

The Centre for the Study of Financial Innovation, a London based think-tank, at the end of the 1990's initiated an investigation into the "non-bank" phenomenon within Europe and how this would impact the retail banking sector (Lascelles 1999). They concluded that the new entrant retail players did pose a serious threat for the longer term, although the market-share impact made by retailers into the financial sector was currently small.

It seems that the retail sector is poised, therefore, to make an impact on the retail banking sector and its financial systems. Furthermore, much of this latent retail sector activity has been supported by technology-led innovations. Similar to the first industrial revolution, our current information revolution is developing new sets of financial systems and structures, which are changing and challenging existing relationships and dominances.

Yet, the retail sector is not the only threat to the retail banking and financial sectors. Edward De Bono (1993), while at the Centre for the Study of Financial Innovation, raised the concept of an *asset-backed* 'IBM Dollar' or large corporation currency that is directly

linked to the commodity being produced.² David Boyle (2000) also suggested something similar to the concept of corporate money, in the form of new money systems for large urban centres such as London. This would effectively form 'regional corporation' money and cover significant expenditure items within the region, such as transport and/or local economic exchanges. Examples already exist with the Oyster card system in London and the Octopus cards in Hong Kong, which can also be used to purchase non-transport items. Similar systems have been applied in other cities around the world, one of the most recent being in Dubai (Octopus 2007). The Oyster and Octopus systems do not, however, perform the *full* functionality of a complementary currency system (envisaged by Boyle) that operates alongside existing financial systems. Perhaps the closest example of such a system is the 'Wir' system in Switzerland. Wir, an acronym for Wirtschaftsring –'economic circle' Europe's oldest bartering operation, is specifically aimed at smaller companies, and is now so widespread that it amounts to a virtual currency in parallel to the Swiss franc. Wir was started in 1934 by two followers of the economist Silvio Gesell (admired by Keynes), who had urged the creation of negative interest-rate currencies. By 1993, it had a turnover of £12 billion and 65,000 corporate members." (Boyle 2000, p14).

A large city can have enough social participation and economic activity to generate its own dual currency, that competes with (and complements) the existing formal currency and financial system. However, the same may also be true of all manner of dispersed groups that engage in mutual exchanges, such as commercial or socializing networks that use the internet to shrink the distances between the participants. Corporate networks have recently emerged with a host of voucher systems for *inter alia* books, music, groceries (e.g. Tesco clubcard points) and travel (e.g. Airmiles). An interesting collaboration of 'vouchers' has also emerged in Ireland with 'The One4all® Gift Voucher' (see <http://www.one4all.ie/>) which uses a single voucher for 4000+ retail outlets. This has been expanded to other regions as well, including some parts of the UK and Malta. In the same fashion, these city systems and networking systems are driven and supported by the information and communication technologies at the heart of the information revolution.

Technology innovations are also set to continue making deep changes in the financial services sectors. The next technological evolution of the Internet, for instance, towards Web 2.0, is set to have a substantial impact on the range and type of financial services that will emerge, as well as facilitating even more new entrants to the financial services market place (Towell *et al* 2007). It also seems likely that the Web 2.0 (evolving) financial services market place will soon be dominated by technology companies and virtual retailers rather than the more traditional banking institutions.

To fully appreciate the impact and potential of non-banking entities to compete as alternative monetary and exchange systems, it will be helpful to acquire a better understanding of what money actually is. This will be covered in the next section.

BACKGROUND TO MONEY CONCEPTS

At a basic level, money functions as a (concrete payment) means of exchange, unit (and

² This, of course, would be anti-inflationary.

means) of account, store of value and standard for deferred payment. Yet also, as Davies notes (p.27) money provides a framework for the market allocation system (prices) and also the existence of monetary factors arguably provide an instigative impact on the productive economy in general.³ Other features of money include cultural and psychological factors. The existence of a separate currency for a particular jurisdiction, for instance, is often perceived as a sovereignty issue and a source of national pride.

To fully understand money one has to consider the context and time of its use. Generalized monetary discourse, as Niebyl noted in his review of the classical economic period, is often problematic since the theoretical development and empirical work on money has predominantly pertained to a specific historical context and cannot be universally applied (Niebyl, 1946). Furthermore, monetary theorists (even from the same school of thought) have historically disagreed on the origin, nature and function of money *per se*. Notwithstanding, much of the prevailing monetary thinking has been loosely based upon ideas formed during the industrial revolution and its immediate aftermath.⁴ In the current era, as discussed above, we are arguably in the throes of an e-commerce or information revolution where the fundamental commodities are information-based. The channels of money transaction, in corporate and the traditional banking sector, are increasingly technology-based. Electronic digits have virtually replaced coins and paper.

Complementary Currencies

There are various dual currency developments in the world today. Venezuela, for instance, has been going through a period of record high inflation, and currency devaluation, and is preparing to introduce a *de facto* dual currency system to develop some stability in the economy (Mander 2008). In the global economy, the dollar or increasingly now the Euro (or any stable currency), is often used as a dual currency alternative to local (relatively unstable) currencies. Having a dual currency is not just about stability. Multiple currencies are not new phenomena and, some argue they perform a specific set of functions that substantially improve the quality of economic and social life. Bernard Lietaer, a recognized expert on complementary currencies, has provided convincing evidence from Bali where a successful dual currency operates (Lietaer, 2006). As Jacobs has argued (Jacobs 2003, p29): “we need a range of currencies, time banks to underpin the social economy, local currencies to keep money and resources circulating locally and regional currencies to provide low cost finance to small business. It is also argued we need a range of experimental (asset based – *our emphasis*) currencies based on anything from renewable energy to the value of local vegetables” (Douthwaite 2003, p165).

The examples discussed in the previous section (e.g. IBM dollar, Wir) show the potential

³ This is disputed by mainstream economists who view money as neutral and, therefore, secondary to the productive economy (see for instance Mouatt (2008))

⁴ These initial ideas have been further developed in the twentieth century by, *inter alia*, the marginal revolution, Keynes (and post-Keynesians), Circuitists and the neo-classical synthesis. Also, heterodox economists continue to proffer alternative theories of money to the mainstream ‘neutral’ view of money.

for dual currencies to operate on a relatively large scale. There also seems to be community aspect to sharing a dual currency. Ownership (with property rights to control) of a currency, or dual forms of money, can develop and maintain a sense of community, even between people dispersed over large areas such as with rural communities in Australia (Taylor and Marshall 2002). The community aspect is often found in (social) monetary contexts, notably in Local Exchange and Trading Systems (LETS). David Boyle's books 'the Money Changers' and 'The little money book' give several examples of successful LETS schemes (Boyle 2002, 2003), including Edgar Cahn's Time Dollars (Boyle 2002, p241) and a variety of LETS systems evolving from Michael Linton's mutual credit system called 'green dollars' (Boyle 2002, p262). Many of the LETS are based around towns, cities and their distinct communities. An example of a local exchange scheme, making use of the electronic world, is 'Geek Credit', described as "a digital complementary currency for internet. It is decentralized, secure, interest and demurrage free and is backed by mutual credit (time). Since there is no central issuing and control authority, it is a true peer-to-peer currency" (GNA).

Many organizations, and even individual people, have created their own money (Boyle 2003). In Europe the EU Electronic Money directive gave member states guidelines to develop legislation for corporations to develop their own electronic monies. In the UK this has been translated in to the governance of electronic money issue, by the Financial Services Association (FSA) who issue licenses for corporations that wish to issue their own money. The licenses are granted under tight rules and monitoring activity. Interestingly, Paypal was an early example of a licensee under the new EU scheme, pre-dating the issuing of licenses to many of the telecoms companies. An amendment to the directive from the EU, directive 2007/64/EC, moves further to encourage competition in financial services and e-payment markets. Fundamentally, the amended directive encourages variation and competition, specifically incorporating supermarkets, retailers and other entities, and to encourage low value or micro payment mechanisms.

In this light of these new forms of money, it is useful to reflect that all sorts of things have been historically used as money, for instance Davies (1994) provides an alphabetical list of some of the more primitive examples of money, including: "Amber, beads, cowries (shells), drums, eggs, feathers, gongs, hoes, ivory, jade, kettles, leather, mats, nails, oxen, pigs, quartz, rice, salt, thimbles, umiacs, vodka, wampum, yarns, and zappozats" (Davies 1994, p27). Wampums are shells or beads used by the North American Indians as money. Zappozats are apparently decorated axes. Using a precious metal, like gold or silver, or a rare and precious item has provided a good base for money, and the weighing and assaying functions have usually been performed by the state. The relative scarcity and preciousness of the items embeds 'value' into those items. People have had a stronger basis to trust the value in those items. Equally, any item that is accepted as a value of exchange, and fulfils the other (stated) functions of money can be use. So, therefore, in the social networking and virtual world of Second Life they can use Lindens which, although arbitrarily attached to \$'s, are backed by the virtual produce of the site.

A dual/multiple currency approach, based on non-banking activity, seems to offer realistic competition to the vulnerability of the financial markets. In the context of widespread instability, it is hoped that existing and latent *corporafinance* could provide a safety net. The natural extension to a capitalist banking system is that the market will find alternatives. Dual currencies already operate in a variety of different forms around

the world, from social network systems to larger-scale corporate non-bank systems. There are also many non-bank large players that can take a leading role in developing a sustainable corporafinance alternative, such as technology companies (e.g. IBM, Microsoft, Google) or retail companies at the forefront of using ICT (e.g. the voucher based systems of Wal-Mart, Tescos in the UK, Carfour in France).

A way forward has been provided by later parts of Kroszner's speech, covering the need for standardization: "The benefits of the development of standardization for enhancing the liquidity of financial markets have a long history ..." and he provides a few historical examples "the development of exchange-traded commodities futures contracts in the mid-1800s [which] improved the flow of information to market participants, reducing transaction costs and fostering the emergence of liquid marketsIn the early days of the Chicago Board of Trade, in the mid-1850s, standardization took the form of creating "grades" or quality of categories for commodities ... [resulting in] traders no longer needed to verify that a certain quantity of grain was a sufficiently high grade" (Kroszner 2007, p5-6). Standardization, it is argued, will improve the information needed to support stakeholders in understanding market risks and is also practically indispensable for developing market stability. In order of *corporafinance* to provide a real alternative to the financial systems then a variety of system approaches should combine and collaborate. The notion of free banking, as Hayek had posited, will allow a variety of currencies to develop with the assumption that market forces will (after adjustment) lead to the establishment of stable and trusted monies.

CONCLUSION

Money and its related infrastructures have continually evolved throughout history. As Williams et al (1997) notes on the development of money, "The clearest characteristic of the modern period of world history is perhaps the rate at which change has taken place – particularly in relations to changes in technology and the sciences, in which the last 250 years have seen greater change than in the preceding 2,500. This feature is typical of the modern history of money" One could argue that the last 50 or possibly even just 25 years has seen as much change in money and the payments industry as in the last 250 years: For instance the introduction of derivatives, futures markets, global currencies and exchanges which dwarf the scale of any money flows preciously seen in history, or, the wide scale adoption of credit and debit cards, ATM machines, online banks accounts, online purchases capabilities and practices, and new forms of banks and institutions (e.g. PayPal, Google) that are shaping consumer and commercial practice in the information economy. Add to this the immense potential afforded by Internet and mobile technologies which are providing wider access (for instance in the developing world), new channels, and most importantly bringing in a whole new set of industries (with their technologies, capabilities, business models etc) into the (electronic) payment arena. The traditional banks and financial institutions are not necessarily going to emerge as the main drivers and implementors of change.

There are current instabilities within the financial markets and, on close examination, systemic vulnerability. The banking and financial sectors seem to be based on increasing levels of abstraction creating distance between them and customers as well as the productive economy. In similarity to the industrial revolution, our current e-

commerce or information revolution is resulting in the development of a new set of financial structures, that are changing and challenging the existing relationships and dominances. The *corporafinance* and multiple-currencies discussed in the paper, provide a possible route to overall stability in the overall economic system.

Government responses around the world, to avert or reduce the impact of recession (i.e. cutting interest rate to low levels) are often unsuccessful. When the Japanese banking industry faced equally turbulent times, and had to be supported by the state in the mid-1990's, the Japanese economy had a decade or more on the brink of deflation. A credit squeeze can also have a negative impact on the economy, particularly on growth. One aspect of an e-commerce based dual currency system is that it provides an alternative avenue to foster economic growth. The dual or even multiple currency aspects means that while the traditional financial systems are locked into deflationary conditions, derived from nervous lenders, at the same time there could be a flourish of economic activity based on information commodities (and services) using a competing electronic monetary system. Historically, theories of capitalism often seem to support the emergence of innovation, like dual or multiple currencies for instance. When one part of the market breaks down then other market structures simply emerge to take their place.

It seems that the retail and technology sectors could be poised to make a serious impact on the banking sector and its financial systems. Global systems would require cooperation and collaboration, of course, between large non bank entities and industries. However, at the local and regional levels we are seeing the emergence of *de facto* money-standards such as voucher systems, LETS and virtual exchange systems.

Interestingly, in his general analysis of the future evolution of capitalism, Marx had posited that industrial capital would gradually subjugate the private banking structure (commercial and investment banks) on the grounds that interest-bearing capital serves the capitalist production process (and is therefore ultimately dependent on it) and that commercial credit was a secondary function (merely concerned with circulation) to the *value-adding* production process (Marx, 1971, p.468). After the industrial revolution, Marx appeared to be wrong as the private banking structures gained capabilities. Hilferding even thought that the banks were leading industrial capital - the Hilferding notion of *finance capital* (Hilferding, 1910). During the twentieth century the private banks had seemed to strengthen, particularly with the evolution of hedge funds and private-equity firms (with their ability to short-sell currency and stock) in a new deregulated (post-1973) environment.⁵ Yet, the contemporary signs of systemic weakness discussed earlier may point to a change in the supremacy of financial capital. As *corporafinance* and complementary currencies evolve, these may provide real competition to the financial sector. Given the instability in the financial market, such developments may offer much needed stability and competition

⁵ 1973 marked the collapse of the Bretton Woods fixed exchange rate regime and the start of a new deregulated financial environment, consisting of floating rates and free capital movements. In addition, the firewalls between commercial and investment banks (following the reversal of the Glass-Steagall legislation) facilitated a new credit-fuelled era of speculation.

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